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INTRODUCTION

This memory board is designed to fill the transparent 8K block of memory (from 8K to 16K) in a ZX81-16K system. This area of memory is an ideal place to store, either permanently or temporarily, machine language routines or data which are to be used by the BASIC system.

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T-S HORIZONS is published monthly. Subscription rate: $12.00 per year (12 issues). Back issues and samples: $1.25

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Dear Reader,

After a longer wait than expected (more about that later), we welcome you to third issue of T-S Horizons. There have been some new developments around here I'd like to tell you about. We are happy to introduce some new writers to these pages - some of whom you may already know from their work in other publications.

Gordon Young has published a newsletter in Vista, California for about two years called Z-West. He has had a loyal following of readers from across the United States and Canada. Recently I received a letter from Gordon who had gotten a sample copy of T-S Horizons and liked it. In his letter he explained that Z-West was ceasing publication with the January 1984 issue, and he offered to write for T-S Horizons on a regular basis (an offer I couldn't refuse).

Gordon has writtten articles for major computer publications (e.g., Sync , Jan/Feb 1984). Knowing the reputation of Z-West, we expect to see many great articles from Gordon. Z-West was known for good machine code and other programming articles, as well as reviews and program listings.

Through Mr. Young, I was introduced to Tex Faucette, an active TS 1000 user from the southern U.S. Tex will be reviewing software and providing other articles to T-S Horizons regularly. In this issue he reviews an excellent filing program for the TS 1000 called ZX Pro File.

Beginning in this issue we will be running a series of four articles by Lien Chii, a programmer for The Ultimate Blackwood. The first installment is a "page-flipping" or computer animation program. This series of articles will be useful for a wide range of applications, so don't miss it.

By coincidence, John Marion contributed another page-flipping program, "Animate", for this issue. John's approach is different in that it combines an on-screen drawing routine with page-flipping, to produce animation. John is a member of the Portsmouth Timex user group.

By the way we hope you enjoy this issue's Timex Comix feature (page 25). It is something of a tribute to Dan Ross the Timex Computer executive who recently announced his resignation (see page 24). Special thanks to Barry Hollsinger for supplying the artwork for the cartoon.

Bill Johnson introduces an interesting concept in Programming Tips, and he is currently preparing a feature article on "error recovery" for a future issue. (Note: The format of Programming Tips, and Hardware Hints from last issue, make them excellent vehicles for our readers to submit short articles on a wide variety of subjects, and we encourage them to do so.)

Amateur radio enthusiasts should check out the software reviews by Bil Johnson (page 22). Art Gindin has written the second of his "Reviews for the Non-Programmer" on page 21. Kids' Page, as well as the second part of last issue's graphics tutorial will return in the next issue.

So much for the introductions.

<u>Yes, we are still monthly.</u>

Due to technical and other difficulties beyond our control, the publication of this issue had to be delayed (hence the Jan/Feb cover date). We apologize but it was unavoidable. We did however use this time to get a little better organized (we are new at this after all). If you are a subscriber, rest assured that your subscription is for 12 <u>issues</u> , not 12 <u>months</u> .

As I said before we are new at this, and we can make mistakes. If you ever miss an issue or don't receive an answer to correspondence, please don't be shy. Bring it to our attention.

Thanks,

Rick Duncan

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MORELAND'S MEMO

By Bill Moreland

Theories of mass marketing may be of little interest to many readers, but you must be aware that companies that sell through discount and chain stores depend on selling large numbers of their products at reduced prices to make their profits. These facts have real meaning for the first-time computer buyer.

The choices of what to market, when to market it, and the price for the item are very different for a mass merchandiser than a specialty computer company. While the profit motive may stimulate both kinds of companies, the mass marketer is more interested in selling volume than quality and therefore takes a different approach to engineering, production and distribution of its products.

The Timex Corporation is a mass merchandiser. It sells its products through all of the outlets that any mass merchant would use. I point these facts out so the reader can understand that, while the Timex family of computers is superior in many respects, the market support from Timex is not the same as the support from IBM, for example, for its products.

These facts translate into a very different marketing strategy for a retailer. Like the mass merchandising company, the retail store must sell volume to make profits. Unfortunately, this means that support by the retailer for the computer is probably going to be very limited. (Unless someone in the store takes an interest in the device on a personal level, very little information will be available from the store. After all, profits do not come from providing information on how to make a toaster oven work. Only the sale of the item is of interest to that kind of retailer.)

The consequence of these observations for the first-time computer can be devastating. An inexpensive computer with poor documentation is almost useless if you can't find someone to help you with your questions. Programs or peripherals are likewise useless unless you know how to go about trouble-shooting to find out whether they are defective (and can be exchanged).

Obviously this can lead to a chicken and egg situation: if you don't know how the computer works, then is the program or peripheral really defective?

Having been a Timex computer dealer for the past year and a half, we have experienced the thrill of victory and the agony of defeat when it comes to support for their computers. Also we have been victimized by mail order rip-off artists and pleasantly surprised by small business people who are trying to make a living with honest products. Likewise, we have been alternately disappointed and happy with Timex distribution policies, feeling frustration or anger with late deliveries while feeling satisfaction (even smugness) with superior products.

Unfortunately, the distribution system for the computer and related products is so complex and fragmented that it is difficult for small dealers to get information. Indeed, it is somewhat discouraging to build a loyal customer base and not be able to find answers from suppliers when questions are raised. In short, with the continuing shakeout of computer makers comes a process of shakedown among the distributors and dealers. With profitability being so low on the machines, it is unclear who will survive.

The message for buyers of less expensive computers is clear: find dealers whom you trust and support them, even if it costs a little more. The good dealer will find answers and provide service and information even if it does not provide immediate profits.

It is from among this group of dealers that continuing support for the machine will come. Let's hope that the next generation of computers from Timex stimulates the same kind of growth in third party products as the earlier models. Maybe next time some rationality will make its way into the distribution system and make all of our lives as computer users easier.

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Reader INPUT
Edited by Bill Johnson

After the premier issue of T-S Horizons was published, I received a letter regarding my article "Creating and Saving Files." (TSH#1, p. 20). I mentioned in that article that it was important to set the array size large enough to hold all foreseeable files that you would want to store there, because redimensioning the array to a larger size would wipe out all your existing information. But the writer of this letter notes that in cases where enough memory is available, it is possible to expand an array by temporarily storing it in a second array. Below are excerpts from his letter.

Let's say, for instance, that your existing string array is DIM A$ (30,3). If you later require a larger array (A$(40,4) for example) you can DIM B$(40,4) followed by:

```
10 FOR N=1 TO 30
20 LET B$(N,TO 3)=A$(N)
30 NEXT N
```

If plenty of memory is available, re-DIMension A$(40,4) to wipe out the original A$ array (after moving it to the B$ array) and run another FOR-NEXT loop to move everything back to the new A$ array.

The alternative is to change the name of the array from B$ to A$ by poking the first byte of the array. Refer to page 131, Chapter 26, TIMEX USER MANUAL for the TS1000. An array of characters will be identified in storage by a Letter from 198 to 223 Decimal (C6 to DF Hex). Subtract 20 Hex or 32 Dec and you will find a character Code from 166 for Inverse A to 191 for Inverse Z. In this case we would want to change the Code from 199 to 198.

There are two ways to find the location of the byte we want to change. Whenever I want to make it easy on myself to locate arrays in memory, I make sure that the appropriate DIMs appear in the program before any other DIMs, LETs or INPUTs (assignments). In this way, the System Variable VARS at 16400+256*16401 will always tell me where the first byte of the first assignment is. Now, the first element will be offset from that first byte depending upon the type of variable; but right now I am only interested in changing the name of this array, which will be that first byte. So, I'll have to tell you that in this case the byte we are looking for will not be pointed to by VARS, but by another system variable, DEST at 16402+256*16403. The plot thickens. We have to do the following: Assuming that B$(1,TO3)="OHI" .....PRINT PEEK 16402+256*PEEK16403 AFTER this: LET B$(1,1)="O".....FROM the address resulting subtract (in this case) eight. Then PEEK this last result (in this case, it should be 199). 199 minus 32=167 which is Inverse B. POKE that byte with 198. Then, try PRINT A$(1) and it should print "OHI".

Incidentally, when I use BASIC to delete an array or string which I no longer need, I use e.g., DIM K$(1). If I use DIM K$(0) I get an Error Code 3; and I do not want to bother my user with Error Codes. Machine Code can do a cleaner job; but, CLEAR is generally unusable; so the DIM(1)s are a good compromise.

John A. Lyons
Columbus, Oh

Obviously this method will not work if there is not enough RAM for the two expanded arrays. (In my file program, the main storage array T$(700,36) uses over 25K of memory.) But if you have enough RAM, this can be a valuable tip no matter what computer you are programming on.

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DATA

CHECKING OUT
Library Computer Lending

We have seen indications that progressive libraries in the U.S. and Canada have found a new way to serve their patrons, thanks to Timex computer technology. Shawnee State College in Portsmouth, Ohio, has obtained three TS-1500's which are available for loan to students and faculty. The computer is checked out from the library just like a book. The library has ordered a TS-2040 printer for loan with the computers.

The portability of the TS-1500 and its sturdiness (compared to the TS-1000), as well as its low cost, make this computer an excellent choice for lending. The machines are loaned out in a molded plastic carrying case for protection. The library leases the computers from Scioto Software Systems, Inc., Rt. 1, Box 41, Lucasville, Ohio 45648. Also available are programming manuals and software on cassette.

A recent issue of Ramblings (a newsletter put out by Timex) describes a public library in Shrub Oak, New York, that loans out a TS-1000 and a ZX-81, with 16K RAMs, tape recorder, and software cassetes. The program instituted there has been quite successful. "How to Market Your Timex-Sinclair Software" by Softmark Associates reports that a Montreal library has a similar arrangement.

We have heard from a few user groups, including the Cincinnati Timex Sinclair User Group, who are actively encouraging local libraries to obtain Timex computers to lend to their patrons.

Partial Pascal

Bring Tape Under Control

Partial Pascal makes tape easier and more convenient to use. The *write* statement in your Partial Pascal program stores output to tape in buffers in RAM. When a buffer is full (or when your program indicates it has no more data to write). Partial Pascal asks what name you want to give it and records a header, the name you specify and the data from the buffer, releasing it to be refilled with more data from your program. The header recorded by Partial Pascal, unlike a "header" consisting of silence, allows the automatic level control on most cassette recorders to stabilize before the name and data are recorded, improving reliability when the tape is read.

Partial Pascal is not fussy at all about positioning the tape for input. Anywhere before the header of the file to be read in will do, including in the middle of earlier recordings. Partial Pascal keeps you informed of what it's reading. If it comes to a header with a name other than the one you've asked for, Partial Pascal shows you the name it has found and continues searching the tape. This makes it easy to rediscover, if necessary, all the names you've used on a tape. If you've typed in the wrong name, press the space key and Partial Pascal will ask you to respecify the name.

The Partial Pascal programming package includes full-screen editor, co-resident compiler, run-time interpreter, utility library, example programs and user manual. 16K ZX81, Timex Sinclair 1000 or Timex Sinclair 1500 required. $30 postpaid from

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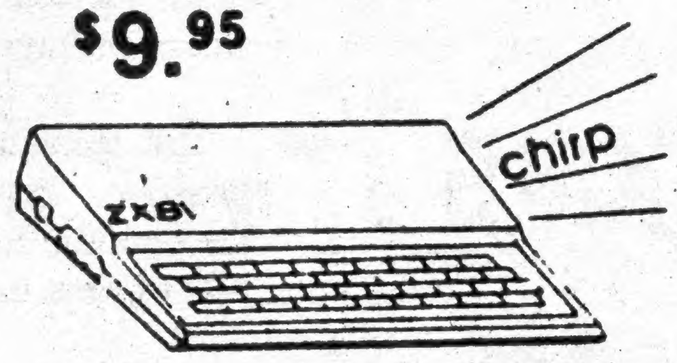

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PROGRAM Tips

FILE PROTECTION
by Bill Johnson

Have you ever lost an entire program because of a bad SAVE that you weren't aware of, or a system crash that obliterated your program during a SAVE? This happens because most of us SAVE programs repeatedly on the same tape, erasing the previous copy of a program every time we store it on cassette. If you have had this experience (and what programmer hasn't?) you know the value of keeping at least one current back-up copy on tape of both programs and software that you're developing.

This is relatively simple for programs that manipulate data but do not require you to SAVE data on a mass-storage device, because you never SAVE over the original.

But what if you have a program that is used several times a week in the course of a few months and is required to accumulate and save data along with the program each time it is used? In this case a single bad SAVE in the course of normal use could wipe out a month or more of data. One solution to this problem is to SAVE the program twice each time you use it, but this still would not protect you from the possibility of having two bad SAVEs ruin your day and it consumes far too much time.

My solution (a rather simple one with a few embellishments) is to SAVE the program on alternating sides of the tape. This method only requires you to SAVE the program once each time you update it, and if a bad SAVE is discovered when the program is next LOADed, there is still a copy of the program and data on the other side of the tape (which has incidentally been verified by its use to be a good copy) and all that has been lost is the data entered in the most recent session.

In the following listing I have incorporated:

1. Instruction to set the computer and tape recorder to minimize human SAVE errors.
2. Program execution of SAVE (therefore program self-starting).
3. Instructions to alternate tape sides.

Notes On The Listing

* Line 9990 should be used to GOTO the first line of your program to automatically begin program execution.

* You may want to insert a message at the beginning of your program stating that if the program has just been SAVEd, rewind the tape to the beginning and store it before shutting down the computer. This will prevent confusion as to which side of the tape you used last.

This technique is also applicable when you are developing programs. Instead of saving over each successive copy, use the opposite side of the tape. You'll use a few more cassettes that way but the peace of mind is worth it.

```
9900 REM *SAVE TO TAPE*
9905 PRINT "     < SAVE REVISED F
ILES >"
9910 PRINT ,,"LAST TAPE SIDE LOA
DED: ";B$
9915 IF B$="B" THEN GOTO 9995
9920 LET B$="B"
9925 PRINT ,,,,"TO SAVE THESE FI
LES....."
9930 PRINT ," *FLIP TAPE TO SID
E <";B$;"> AND"
9940 PRINT " REWIND TO BEGINNING
 OF LEADER"
9950 PRINT ," *PRESS <RECORD> O
N TAPE PLAYER"
9955 PRINT " AND HIT THE <RETURN
> KEY"
9960 INPUT Z$
9965 PRINT ,,,,"THE PROGRAM + FI
LES WILL BE"
9970 PRINT "STORED WHEN LEADER H
AS PASSED."
9975 PAUSE 450
9980 SAVE ""
9985 CLS
9990 GOTO 900
9995 LET B$="A"
9996 GOTO 9925
```

```
    < SAVE REVISED FILES >

LAST TAPE SIDE LOADED: B

TO SAVE THESE FILES.....

*FLIP TAPE TO SIDE  <A> AND
REWIND TO BEGINNING OF LEADER

*PRESS <RECORD> ON TAPE PLAYER
AND HIT THE <RETURN> KEY

THE PROGRAM + FILES WILL BE
STORED WHEN LEADER HAS PASSED.
```

EXAMPLE: FILE PROTECTION

Project

"A SIMPLE LOADING AID"
by Gordon Young

Rick has allowed me to submit article material for this extremely useful publication, and probably the best 'first' item to share with you is a simple loading aid that has become a fixed add on in my own system. If you build and use it yourself for a while, you will find that trying to get along without it will be difficult. It first of all incorporates a simple on/off switch to eliminate the plug-in connector. Frequent plugging in and unplugging eventually wears out the plug receptor jack.

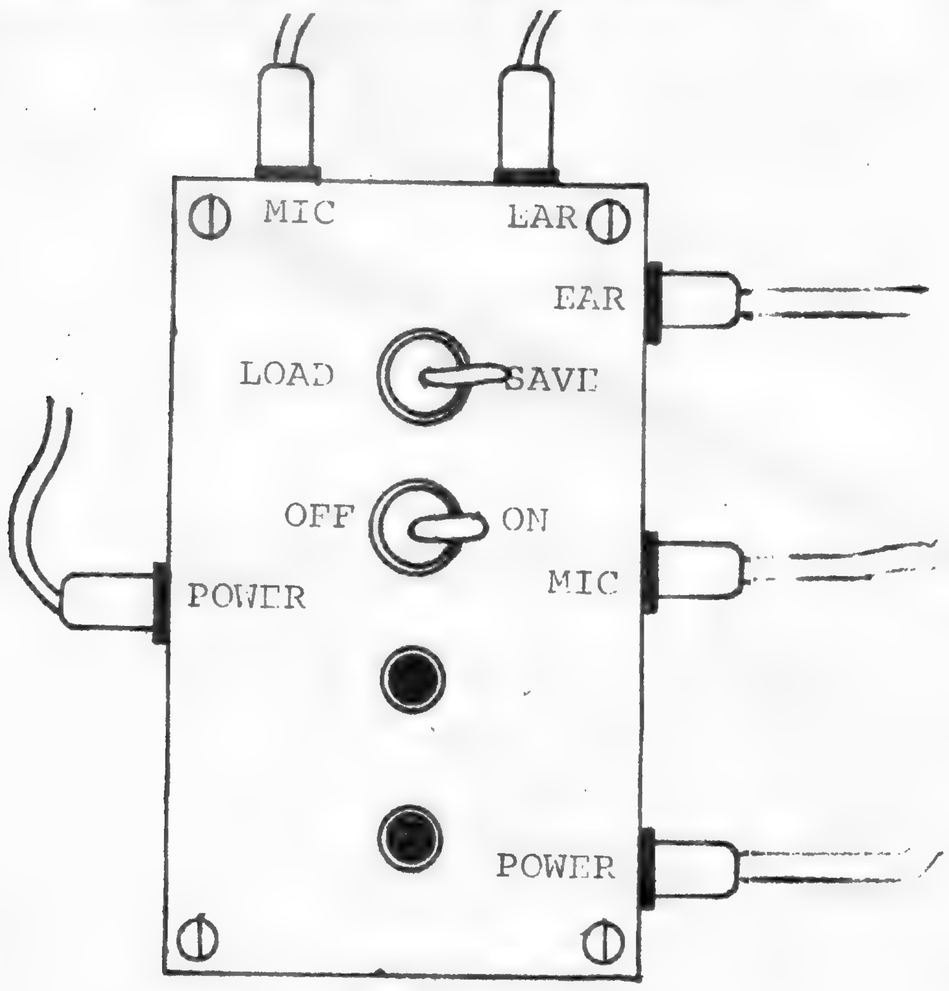
Loading difficulties arise from a number of reasons and the most predominate is that from heating. One of the 40 pin chips inside the TS1000 takes the place of a dozen or so smaller ones and although it allows the physical size to be much smaller, the heat is too much for it alone to dissipate. All new production units are equipped with a small heat radiator that is permanently affixed to the chip and has, as far as I have seen, done away with the majority of loading problems or more specifically, crashes.

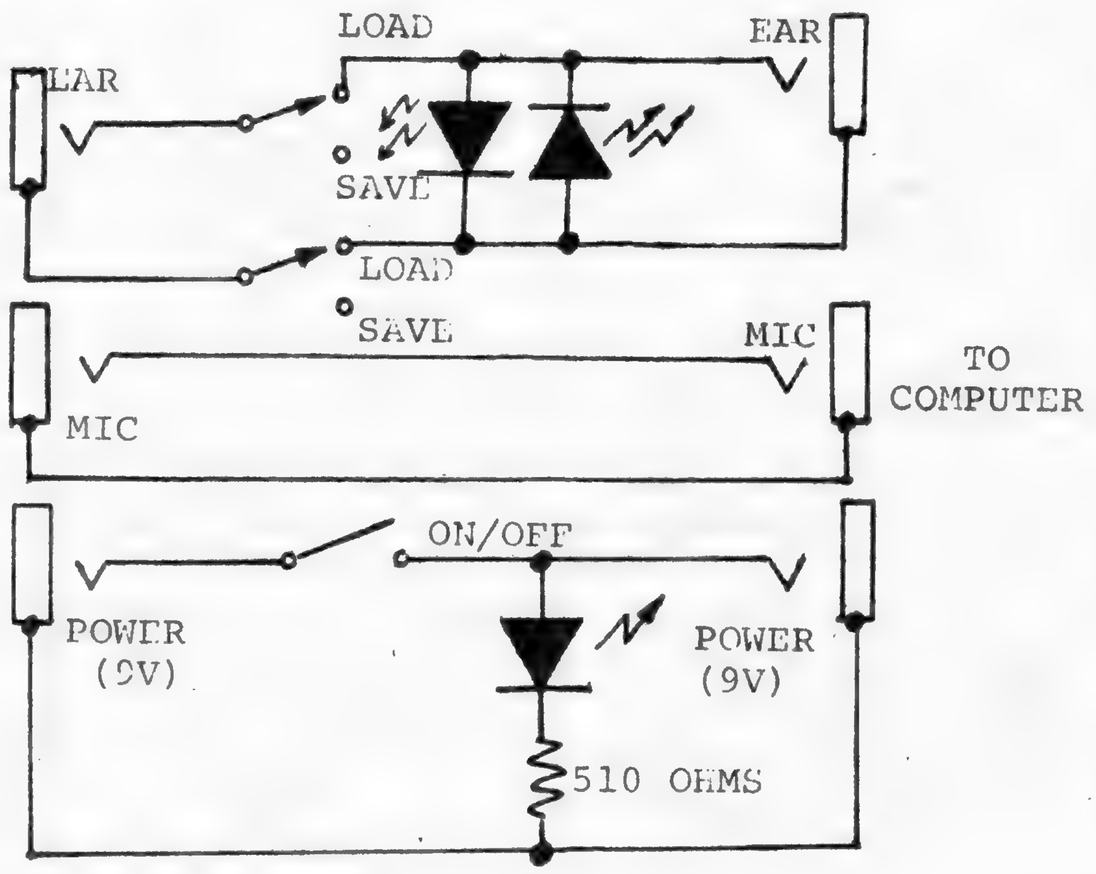
Another problem is with the tape player you use. Most that I have seen (in our local user group), are cheap and inadequate recorders that are a bit poor in rendering not only a good output signal, but even other unseen electrical problems such as ground loops! This problem was noticed when the player was left running with no cassette inside. After touching the EAR plug to the EAR jack on the tape player, a very high pitched sound was noticed. Almost inaudible, you may or may not even hear it or see it on the screen. More often than not, the computer will not be affected by it but depending on the number of devices (MONITOR, PRINTER, COMPUTER, TAPE PLAYER, ETC.) you have running, it may become a real annoyance. This loading aid will serve to eliminate these and other inconveniences you might experience.

All parts needed for this project may be obtained from Radio Shack and very little needs to be said about its construction. The only interesting component is the Light Emitting Diodes. These are connected back to back such that if any clipping occurs, it occurs equally among the signals on line. They do not begin to conduct until the signal reaches about 1.2 volts. When conduction occurs, they begin to glow. They can glow brilliantly if enough signal is pumped down the patch cord by turning the tape player volume up very high.

Take the plastic enclosure and drill holes to receive th 1/8th inch female phono jacks. Drill 3 on one side, 2 in the rear and one on the left. The lid of the enclosure should be drilled to hold the 2 switches, and LEDs .. Wire and solder as shown.

Check your wiring and plug it in to the system. Load a program and monitor the brightness level of the LED. I have perfect results when it is set such that it just begins to glow. Yours may differ, but even with poorly recorded tapes you should be able to adjust the tape player volume to cause the indicator to turn on. Now, use it for a month and remove the loading aid. See if you can conveniently adjust your recorders level without it!





NOTE:
The SAVEing LED can be mounted inside the case.

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1 - DPDT Mini Switch 2.29
1 - SPST Mini Switch 2.49
3 - Light Emitting Diodes - 2 red/.69 - 1 yell. (.79)
6 - 1/8th inch mini jacks 4.00
1 - 510 OHM resistor 1/4W
1 - Small Project box 2.00

Runge-Kutta Method For Solving First Order Ordinary Differential Equations

By: K.D. Lewis

This article considers the numerical solution of the initial value problem

$$y'=f(y,t).....(1)$$

with

$$y(to)=yo.$$

One of the more widely used methods of obtaining a numerical solution to equation (1) with initial condition is to use the Runge-Kutta formulas. The classical Runge-Kutta formula (i.e. the so-called "fourth order" formula) is one which is "equivalent" to a five-term Taylor formula:

$$y_{n+1} = y_n + hy'_n + \frac{h^2}{2!}y''_n + \frac{h^3}{3!}y'''_n + \frac{h^4}{4!}y^{iv}_n$$

where the y'', y''' and y^{iv} denote the value of the indicated derivative of the exact solution to (1) at the point x_n. By "equivalent" it is meant that the local formula errors in the numerical procedure are each propotional to the same power of h plus (possibly different) higher order terms.

The Runge-Kutta formula involves a weighted average of values of f(y,t) taken at different points in the interval $x_n \leq x \leq x_{n+1}$. It is given by

$$y_{n+1} = y_n + \frac{h}{6}(K_{n1} + 2K_{n2} + 2K_{n3} + K_{n4}) \quad (2a)$$

where $K_{n1} = f(y_n, t_n)$ (2b)

$$K_{n2} = f(y_n + \tfrac{1}{2}hK_{n1}, t_n + \tfrac{1}{2}h) \quad (2c)$$

$$K_{n3} = f(y_n + \tfrac{1}{2}h K_{n2}, t_n + \tfrac{1}{2}h) \quad (2d)$$

$$K_{n4} = f(y_n + hK_{n3}, t_n + h) \quad (2e)$$

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The advantages of the Runge-Kutta formula as presented here are:
(i) it has the important advantage of being a "self-starting" and a "single-step" method. This means that by taking only the initial value y(to) as the starting point, the entire solution to the problem can be generated.
(ii) it is easily programmed
(iii) it has good stability characteristics
(iv) the step size (called h above) can be changed as desired without any complications
The principal disadvantage is that more computer time is required with this method than with other methods of comparable accuracy.

The Program:

In order to use this program, you must rearrange your differential equation so that it is in the form of equation (1), with only the derivative (y') on one side, and everything else, f(y,t), on the other side. Having done this, you will need to change the function in the program so that your f(y,t), obtained from the rearrangment above, is written into the program. Once this is done, you can put the program into the "RUN" mode. In this mode, you will be prompted for tour pieces of information. First, the incremental step, (i.e. h in the above discussion) will be input. Next, the initial value of the independent variable (referred to as t in the above discussion) is input. Following this, the final value must be input. Finally, the initial value of y (i.e. y (to)) must be input. When this is done, the program will generate a solution to your differential equation problem.

CONT --->

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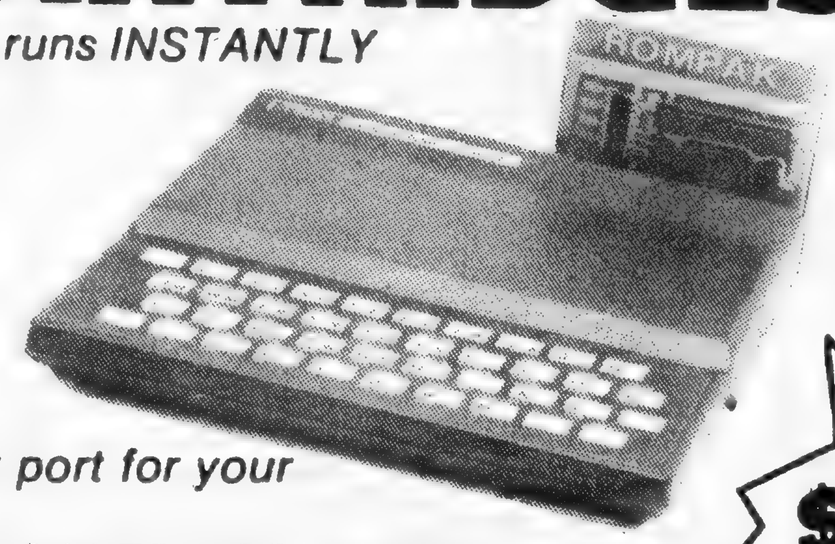

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Example

We wish to solve the first order differential equation $(dy/dt) + y^2 = 1$ (or $y'+y^2=1$) with $y(0)= 0$, up to a time of 2.2 units, using a time step of 0.1. First, we must re-arrange the equation so that only the deservative term appears on the left hand side: $y'=1-y^2$. Now the right-hand side of statement number 315 in the program must be changed to incorporate the right hand side of this equation. Note that the variable y is labelled YD and the variable T is labelled TD in the program. Thus $1-y^2$ would be typed in as 1 - YD**2 on line 315. Now the program is placed in the "RUN" mode and the time step is prompted (0 is entered). Another value, for the maximum time is prompted, and t=2.2 is now entered. Finally, the initial value of y (i.e. y(0)) is prompted, and the value "0" is entered. So we have entered four pieces of data, 0.1, 0, 2.2, and 0 in this sequence, after each prompt. The program then generated the solution.

```
 10 REM RUNGE
 20 DIM Y(3)
 23 DIM F(3)
 27 INPUT DELT
 30 INPUT T0
 31 INPUT TMAX
 33 INPUT Y0
 36 LET TD=T0
 39 LET YD=Y0
 42 LET YP=Y0
 44 PRINT "TIME     Y-VALUE"
 45 GOSUB 310
 48 LET F(1)=FYT
 51 LET Y(1)=YP+(DELT/2)*FYT
 54 LET YD=Y(1)
 55 LET TD=TD+DELT/2
 57 GOSUB 310
 59 LET F(2)=FYT
 60 LET Y(2)=YP+(DELT/2)*FYT
 63 LET YD=Y(2)
 66 GOSUB 310
 70 LET Y(3)=YP+DELT*FYT
 73 LET F(3)=FYT
 76 LET TD=TD+DELT/2
 80 LET YD=Y(3)
 83 GOSUB 310
 85 LET PP=DELT*(1/6)*(F(1)+FYT
)
 86 LET QQ=DELT*(1/3)*(F(2)+F(3
))
 87 LET YN=YP+PP+QQ
 88 PRINT ""
 89 PRINT TD,"    ";YN
 90 IF TD<=TMAX THEN GOTO 92
 91 STOP
 92 LET YP=YN
 95 LET YD=YN
100 GOTO 45
310 REM SUBROUTINE
312 REM ********************
313 REM ****IN STATEMENT 315***
314 REM **CHANGE FUNCTION**
315 LET FYT=1-YD**2
320 RETURN
```

```
TIME      Y-VALUE
0.1              .099667911
0.2              0.19737514
0.3              0.29131232
0.4              0.37994854
0.5              0.46211657
0.6              0.5370488
0.7              0.60436681
0.8              0.66403562
0.9              0.71629656
1                0.76159271
1.1              0.80049748
1.2              0.83365301
1.3              0.86172154
1.4              0.88535005
1.5              0.9051467
1.6              0.92156707
1.7              0.93540768
1.8              0.94660472
1.9              0.95623627
2                0.9640265
2.1              0.97045096
2.2              0.97574226
```


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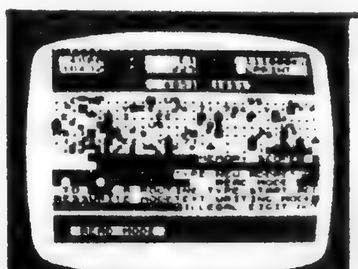

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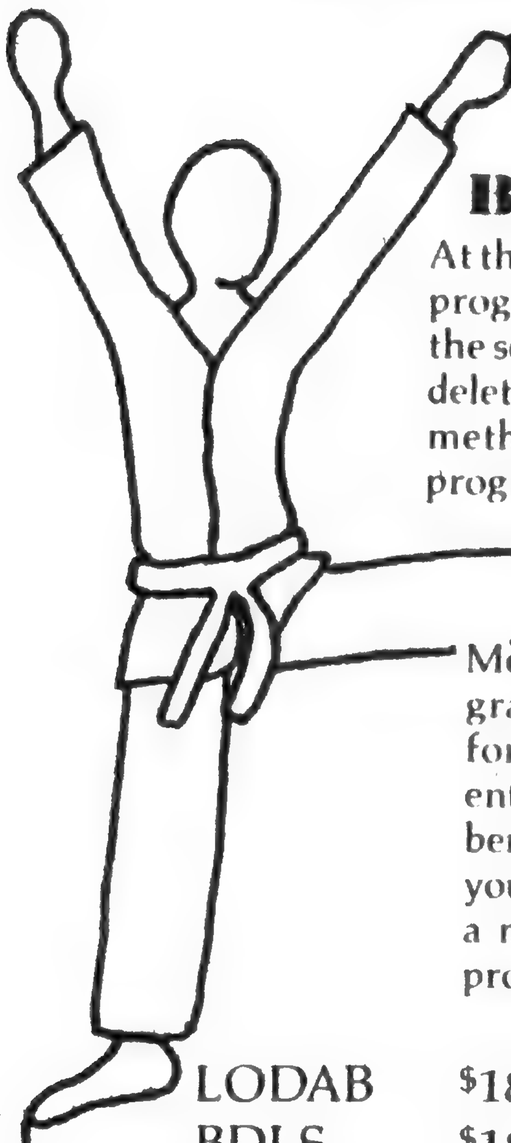

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FEATURE

PAGE: 8

By Lien Chii,
Programmer for THE ULTIMATE BLACKWOOD

This article will give you a very useful utilities program, and will demonstrate and explain its use.

INFORMATION IS BROUGHT INSTANTLY ONTO THE SCREEN

A PAGE-FLIPPER is a program which will store information from the TV screen into the memory of your computer, and then allow you to bring it back onto the screen instantly! This information may be either text or graphics, or a combination of both. A PAGE refers to a full screen of information, and "PAGE: 8" (see LISTING 1) is a page-flipping program which gives you control of eight pages of information.

"PAGE: 8" IS SIMPLE TO USE AND EASY TO UNDERSTAND

Beginners and others can easily use "PAGE: 8" within their own programs. Menus can be projected onto the screen in any order, and fairly simple animation may be done. Before discussing how the program is used, we will look at what it does and how it works.

Start by entering LISTINGS 1 and 2 into your TS/ZX. LISTING 1 is the page-flipper program, and LISTING 2 is a program designed to demonstrate the abilities of "PAGE: 8".

After entering the LISTINGS, ENTER the command GOTO 1000. The program begins by creating eight individual pages. As you view them, "PAGE: 8" copies these images into the storage area. Because the programs are written in BASIC, the storage time is long, about 100 seconds per PAGE. It is worth it, however. The pages recall instantly onto the screen with only two lines of BASIC, and all of your PRINT statements, which originally set up your page, may be deleted!

While the pages are being stored, read through the rest of the article. You will be notified when the demonstration is ready.

PROGRAM THEORY AND ANALYSIS

The TV screen obtains its information from the "DISPLAY FILE", an area within the computer's RAM. To store a page, the page-flipper copies the DISPLAY FILE into a storage area. To recall the page to the screen, the program copies the stored page back into the DISPLAY FILE.

"PAGE: 8" uses the string A$ for the page storage. In the TS1000, a page is 22 lines of 32 characters each. This means that 32x22 (704) characters per page must be stored. Each character occupies one space within the storage area A$, so that eight pages require 8x704 (5632) spaces available. This explains the top line of LISTING 1: DIM A$ (5632). This command should not be entered after any pages are stored since they would be erased. This is the reason for entering the DIM command with no line number: you will not accidently erase your pages.

LISTING 1

```
      DIM A$(5632)
    5 REM ▓ "PAGE:8" ▓ 12/83 TUB
   10 LET A=(PAGE-1)*704
   20 LET B=PEEK 16396+256*PEEK 1
6397
   30 LET C=8
   40 FOR D=1 TO 726
   50 LET E=PEEK (B+D)
   60 IF E=118 THEN GOTO 90
   70 LET A$(A+C+D)=CHR$ E
   80 NEXT D
   90 LET C=C-1
  100 NEXT D
  110 RETURN
  115 REM ▓ PRINT SUBROUTINE ▓
  120 LET F=(PAGE-1)*704+1
  130 PRINT AT 0,0;A$(F TO F+703)
  140 RETURN
  999 REM ▓ DEMO ▓
 1000 DIM A$(5632)
 1005 LET Z$="▓"
 1010 LET PAGE=1
 1020 FOR N=1 TO 704
```

LISTING 2

```
  999 REM ▓ DEMO ▓
 1000 DIM A$(5632)
 1005 LET Z$="▓"
 1010 LET PAGE=1
 1020 FOR N=1 TO 704
 1030 PRINT "▒";
 1040 NEXT N
 1050 PRINT AT 19,11;"PAGE : ";PA
GE
 1060 GOSUB 10
 1070 LET PAGE=PAGE+1
 1080 IF PAGE=9 THEN GOTO 2000
 1090 LET X=10-PAGE*2
 1100 PRINT AT PAGE*2,X;Z$
 1110 LET Z$=Z$+Z$
 1120 GOTO 1050
 2000 CLS
 2010 PRINT "DEMO READY : PRESS A
KEY"
 2020 IF INKEY$="" THEN GOTO 2020
 2030 LET PAGE=1
 2040 GOSUB 120
 2050 LET PAGE=PAGE+1
 2060 IF PAGE<9 THEN GOTO 2040
 2070 LET PAGE=PAGE-1
 2075 CLS
 2080 GOSUB 120
 2090 IF PAGE=2 THEN GOTO 2080
 2100 GOTO 2070
```

Lines 10 through 110 form the subroutine which stores the pages. Lines 20, 40, and 50 locate the DISPLAY FILE and find the 704 characters to be stored. In the TS, each line of display ends with an end-of-line marker, 118. This is why, in line 50, D runs from 1 to 726, and not 704. There are 22 end-of-line markers to account for. Lines 30, 60, 90, 100, and 110 cause the program to skip these markers. Line 10 finds the start of the page within the storage area, A$. The variable PAGE is set by the user before entering the subroutine, and must have a value of 1 to 8. Later when the pages are ready to be recalled, PAGE is assigned to tell the program which page to print. Line 70 places the characters in their correct position within A$.

Lines 120, 130 and 140 form the subroutine which prints the pages. Once your pages are stored, lines 10 through 110 may be deleted. Of course you may not use RUN or CLEAR without losing A$.

USING "PAGE: 8" IN YOUR PROGRAMS

Study LISTING 2 and notice that the image to be stored is first printed on the screen. Next, PAGE is assigned, and then GOSUB 10 is used. Do not forget to DIM A$ first. When the demonstration is ready and running, PAGE is again assigned and GOSUB 120 is used. If a display is stored with PAGE = 5, then assigning PAGE = 5 followed by GOSUB 120 will recall that same page. These guidelines should make it easy for you to use PAGE: 8 within your own programs:

1. Enter PAGE: 8 into your computer along with your accompanying program.

2. STORING THE PAGES Use standard PRINT and PLOT commands to display the pages to be stored. Assign a number 1 to 8 for each page. AT THE POINT IN YOUR BASIC PROGRAM WHERE THE PAGE IS COMPLETELY ON THE SCREEN, ENTER THESE THREE LINES: 1) LET PAGE = the number assigned to this page. 2) GOSUB 10 (See LISTING 1). 3) STOP This line is for convenience only. When the STOP is reached, the Page is stored and you then repeat this procedure for each page.

When you have completed this procedure, you delete all of your print statements and the lines which stored them. I recommend that you test the results first though.

3. RECALLING THE PAGES Each page recall requires two BASIC lines: 1) LET PAGE = the number assigned to this page 2) GOSUB 200 (See LISTING 1)

FURTHER SUGGESTIONS

1. To speed up the page storage, add lines 5 FAST and 105 SLOW to LISTING 1.

2. You may use fewer or more pages by changing the initial DIM A$ statement.

3. It is possible to store a page using print statements as demonstrated, but without the pages being displayed on the screen while they are being stored. (Hint: the system variable DF-CC would be used.)

This concludes the PAGE: 8 article. Write to me with any suggestions or discoveries that you make with PAGE: 8. I have a tape available with three machine language versions of a page-flipper. Each version uses a different area of memory depending upon your needs. Inquire if interested.

Goodbye for now!

Lien Chii
c/o THE ULTIMATE BLACKWOOD
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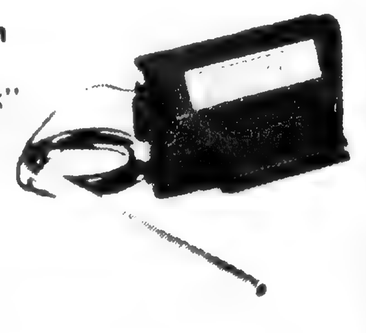

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FEATURE

ANIMATION

by John Marion

Cartoons, as you know, are made up of many drawings which are flipped one after the other. This flippinng or "page flipping" as it is called on computers, gives the appearance of free flowing movement. Using this same principle, we can do cartoon-like animation on our computer. Although, we can't do full length cartoons, we can flip forwards or backwards 18 pages.

HOW TO USE

If no drawings are in memory, and you enter a 1 for the menu selection, the computer will ask you how many drawings you wish to draw. This is because the program uses arrays and in order to save in loading and saving time, you should only reserve as many pictures as you will use. Eighteen pages, are the maximum that 16k will hold but if you have more memory the computer will hold more pictures.

I. DRAW

The unshifted arrow keys (5, 6, 7, and 8) are used to move a cursor around on the screen. This cursor begins in the lower left corner. As the cursor is moved it draws a line. You can erase by pressing "9" and retracing a previous line. Pressing "9" again allows you to draw again. When the drawing is complete, press "Q" to quit. When this is done, the screen will go blank for about 30 seconds, after which the menu will return.

II DISPLAY

To display a picture, enter the page number of the drawing you wish to see. After viewing the drawing, press any key but break and the computer will ask if you wish to see another or return to the menu.

III ANIMATE

When you enter this mode, the drawing on page one will appear. By pressing the 7 key, the pages will begin to flip forwards and will stop at the last drawing. By pressing the 6 key, the pages will begin to flip backwards and will stop at the first drawing. To return to the menu, press Q.

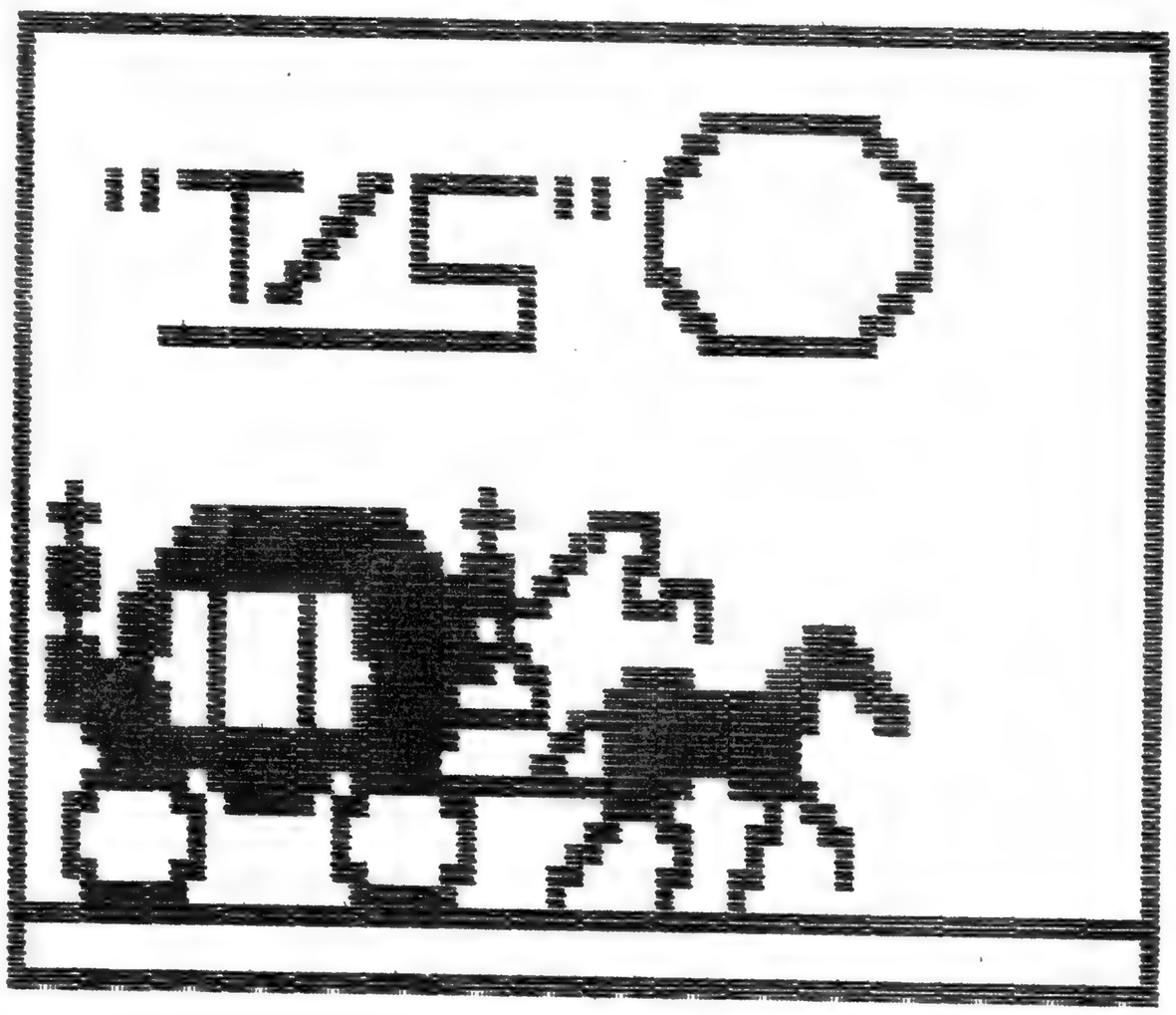
VI CHANGE

In this mode, you can call up one drawing, alter it and save it as the next drawing. Also you can use it to edit a drawing and save it under the same drawing number. After entering the numbers, you will be in the drawing mode as before, but your drawing will be on the screen. When you are finished, you can exit in the same way as before by pressing Q and the menu will return.

Let me know if you like this program and if you have any changes or improvements, I would like to know about them.

LISTING

```
  10  REM  ANIMATE
  20  LET  NP=0
  30  LET  D=1
  40  LET  PN=1
 100  CLS
 110  PRINT  AT  3,12;"[graphic]"
 120  PRINT  AT  6,9;"(1)  DRAW"
 130  PRINT  AT  8,9;"(2)  DISPLAY"
 140  PRINT  AT  10,9;"(3)  ANIMATE"
 150  PRINT  AT  12,9;"(4)  CHANGE P
IC"
 160  PRINT  AT  14,9;"(5)  SAVE"
 170  PRINT  AT  16,9;"(6)  QUIT"
 180  INPUT  M
 190  GOTO  (1000*M)
1000  REM  [graphic]
1010  CLS
1020  IF  NP>0  THEN  GOTO  1070
1030  PRINT  AT  5,2;"ENTER THE NUM
BER  OF  PICTURES"
1040  PRINT  AT  7,6;"YOU WISH TO D
RAW"
1050  INPUT  NP
1055  IF  NP<1  OR  NP>18  THEN  PRINT
  AT  18,10;"[graphic]"
```



EXAMPLE-"ANIMATE PROGRAM"
This graphic was submitted by Steve Douglas of T S Research in Dayton, Ohio. It was done using Steve's own drawing program. However, it does serve to illustrate the drawings you can make using ANIMATE.

```
1050  IF NP<1 OR NP>18 THEN GOTO
1050
1060  DIM A$(NP,704)
1070  CLS
1075  LET P=PN
1080  LET X=0
1090  LET Y=0
1100  IF D=-1 THEN GOTO 1140
1110  UNPLOT X,Y
1120  PLOT X,Y
1130  GOTO 1160
1140  PLOT X,Y
1150  UNPLOT X,Y
1160  LET X=X+(INKEY$="8" AND X<6
3)-(INKEY$="5" AND X>0)
1170  LET Y=Y+(INKEY$="7" AND Y<4
3)-(INKEY$="6" AND Y>0)
1180  IF INKEY$="9" THEN LET D=D*
-1
1190  IF INKEY$="0" THEN GOTO 130
0
1200  GOTO 1100
1300  FAST
1310  LET DF=(PEEK 16396+256*PEEK
 16397)
1320  FOR A=1 TO 704
1330  IF PEEK (DF+A)=118 THEN LET
 DF=DF+1
1340  LET A$(P,A)=CHR$ PEEK (DF+A
)
1350  NEXT A
1360  SLOW
1370  LET PN=PN+1
1380  GOTO 100
2000  REM
2010  CLS
2020  PRINT AT 4,5;"ENTER NUMBER
OF PAGE";AT 6,7;"YOU WISH TO SEE
"
2030  INPUT SP
2040  IF SP>NP OR SP<1 THEN GOTO
2030
2050  CLS
2055  PRINT A$(SP)
2056  PAUSE 2000
2060  PRINT AT 21,0;"DO YOU WISH
TO SEEANOTHER (Y/N)"
2070  INPUT B$
2080  IF B$="Y" THEN GOTO 2000
2090  GOTO 100
3000  REM
3010  CLS
3020  LET PA=1
3030  PRINT AT 0,0;A$(PA)
3040  LET PA=PA+(INKEY$="7")-(INK
EY$="6")
3050  IF PA>NP THEN LET PA=NP
3060  IF PA<1 THEN LET PA=1
3070  IF INKEY$="0" THEN GOTO 100
3080  GOTO 3030
4000  REM
4010  CLS
4020  PRINT AT 4,2;"ENTER THE NUM
BER OF THE PAGE";AT 6,6;"YOU WIS.
H TO CHANGE"
4030  INPUT PC
4040  IF P<1 OR P>NP THEN GOTO 40
30
4050  PRINT AT 8,0;"ENTER PAGE NU
MBER TO SAVE UNDER"
4100  INPUT P
4105  CLS
4110  PRINT A$(PC)
4120  GOTO 1080
5000  REM
5010  CLS
5020  PRINT AT 8,4;"START TAPE AN
D HIT ENTER"
5030  IF INKEY$=CHR$ 118 THEN GOT
O 5060
5040  PRINT AT 8,4;"START TAPE AN
D HIT "
5050  GOTO 5020
5060  CLS
5065  SAVE "DRA"
5070  FOR Z=1 TO 20
5080  PRINT AT 10,10;"STOP TAPE"
5090  PRINT AT 10,10;"
5100  NEXT Z
5110  GOTO 100
6000  REM
6010  CLS
```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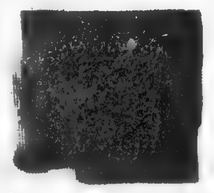

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ZX PRO-FILE

ZX PRO/FILE (c) Thomas B. Woods, P.O. Box 64, Jefferson, NH 03583 Available from Robotec, Inc., 59L St., Ampoint Ind. Park, Perrysburg, OH 43551 $16.95 and $1.25 Shipping
Reviewed by Tex Faucette

Inside the front cover of the ZX PRO/FILE Manual, Mr. Woods dedicates this Program to all Timex and ZX81 owners who refuse to believe that their machines are "just a toy". Inside the back cover is an invitation to subscribe to a quarterly newsletter, "PRO/FILE UPdates".

Between these two covers is found over 50 Pages of the best documentation that this reviewer has encountered. Mr. Woods, in this documentation, has set a goal which other Programmers would do well to strive for.

The manual begins with a brief statement of the Program capabilities and loading instructions, then proceeds through a series of paragraphs explaining each function available in the program. Following a discussion of printer parameters is a section on program modifications which includes one such mod to utilize the FASTLOAD program from International Publishing and Software. Other suggested modifications include File Search/File Count, adaption to RAMs larger than 16k, adaption to TIMEX printer, and "do file" which may be used to enable a disk or "stringy-floppy". Appendix I contains an annotated Basic listing. Appendix II has both a machine code tutorial and a well-annotated machine code listing.

ZX PRO/FILE reached me already configured for my MEMOTECH parallel interface and Seikosha GP-100 printer. The program loaded on the first try, presenting me with the Main Search Menu. The main menu gives options to search (by single or multi word), add, save, auto search (displays all files), or alter print format. It also displays current print status and amount of space open. Set for 16k RAM over 10,000 characters may be loaded. Individual files may be of any size, with line length limited to 27 characters. Entry of a line of over 27 characters gives a message that the line is too long and requests re-entry. Files are separated by use of the star (shift B), which is automatically poked into the first line of each file. A file is closed when desiring by entering "c". The first line of each file must contain data, but after that blank lines may be reserved for later use by entering a period. The cursor moves down to the next line when a line is entered, but may be moved up or down with the arrow keys (shift 6 or 7) for editing.

The only slow thing about this program is entering data with the Timex keyboard. I entered several individual files of genealogical data for test purposes, and discovered that both single and multi-word search commands executed almost instantly. Search command "TAYLOR" called up all the "Taylor" files, while search command "William" would give me all the "Williams" regardless of family name. The multi-word command "WILLIAM/TAYLOR" would yield the file on that individual only.

Printout was neat and quick. The "DEFP" (Define Pprinter) command allows specifying start line, number of lines printed, and number of lines between forms. This feature is great for such chores as preparing mailing labels, as well as printing out the somewhat longer ancestor files.

In conclusion, it is my opinion that Mr. Woods has done an outstanding job with this program in both the areas of performance and documentation. I believe that most users, after a practice run or two, will agree that it is also User Friendly!

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MEMOCALC

Reviews For The Non-Programmer
by A. Gindin

If you have purchased the Hunter Board and the Z-XLR8 EPROM I recommended last month, you have learned that the EPROM will not work with less than 16K of RAM. You can probably purchase 16K RAMPAKS cheaply from those of us who have connected to 64K. I am presently building the Byte-Back 64K memory board and will report on it later, but otherwise I have read little to suggest one 16K or 64K memory over another.

Most micro-computers today are packaged with a spread sheet. Sinclair has had the VUCALC available to some time, but my experiences have shown that it is inferior to the Memotech MEMOCALC.

The VUCALC is 36 columns across and 26 lines down and very easy to use. The cursor is moved instantly by pressing the arrow keys. It will repeat a formula across a line and thus will compute compound interest with one stroke. However, it does only hold about 40 formulae and will only accept the simple arithmetic functions +, -, x, ÷; and, since each formula can only be one line long, adding a column requires two subtotals. Also, a zero must be entered in a blank square if that box is part of a calculation, or an "error" will result.

For $15 the VUCALC is a very useful program for perhaps a small investment program. However, I abandoned VUCALC because it did not have one command which is specified in the documentation. It is supposed to copy from the screen to the printer, but will not, (at least with my MemoTECH interface and Seikosha printer). In fact, it will not even accept the COPY command. I have written to Sinclair who asked that I return the program. I did, and I have received no answer for several months.

My replacement is the MemoTECH MEMOCALC which will print. It will also do more; i.e. do any calculation, do totals with one command, and print the months with one stroke. It will hold 1800 cells in 16K or 7600 in 48K. It is now selling for about $40, due to the presence of the 2068, which is still considerably cheaper than one of the more famous spreadsheets. MEMOCALC is on a prom which means instant "loading" in the 12-16K area. Unfortunately this means that the Z-SLR8 has to be removed while it is in use. (I am working on a solution for this.) Naturally, as one gets a better product, more commands are involved which have to be memorized or referred to. Be sure you need all the features before you buy a more powerful tool.

Next month I will discuss a data base manager and perhaps some hardware to improve reliability. I would like to hear some opinions as to the best word processor for the TS-ZX.

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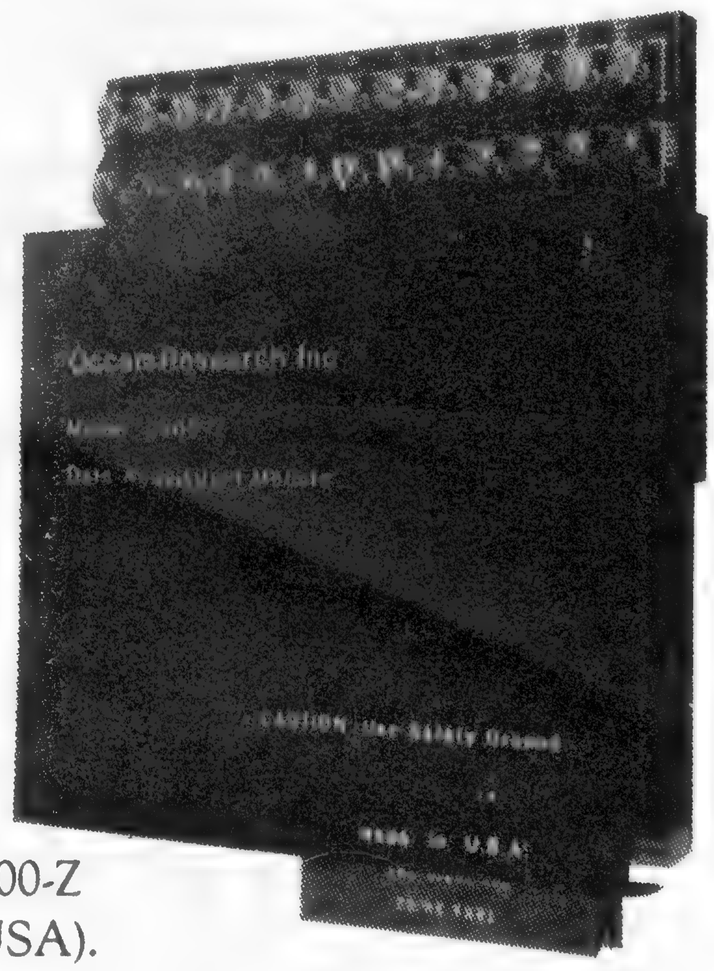

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AMATEUR RADIO

Ham Hacker Programs
from Hawg Wild Software
reviewed by C. W. Johnson

"Morse Code"

In radio communications, Morse Code is still considered to be one of the best modes of communicating in the most adverse band conditions. And in band "pile-ups" Morse Code is still the one that is easier to filter out than voice communications. For emergency communication its the one that's most reliable for messages.

Whether you're just learning Code, upgrading or just rusty and need more practice, this program is an excellent skill-building aid.

This program comes up running with a menu, prompting for a choice. The first choice is "WRITE A MESSAGE," which permits you to enter whatever text you wish to practice on. The second choice is "RANDOM CODE" which, if selected, generates at random code of: specific letters, all characters, letters only, numbers only, or mixed letters and numbers, according to which one you select.

The third choice is to "SEND CODE" using your choice of characters and spell. The text will be either the message entered under choice 1 or the random characters of choice 2. The programs transmits audible signals through the TV set. (Note: some tuning is necessary to hear the tone clearly from the TV.)

The fourth choice is "DISPLAY MESSAGE" which will display, for checking your accuracy, what was sent by code.

The fifth and last choice "SAVE ON TAPE" saves the message and practice session for replay later. This choice can also be used to make a back up tape.

There is also a 2K version, in which you enter all characters you wish to practice on, included on the tape.

I highly recommend this form of code practice due to its flexibility, and randomness. A fault of tapes and records for Code practice is that the text is eventually memorized.

Happy Brass Pounding,
Bil Johnson, WB8YIB

"For the DXer"

If you're having trouble contacting DX stations, then maybe the "MiniMUF 3.5" program from Hawg Wild Software can help you. MiniMUF calculates the MUF (Maximum Usable Frequency) for each hour of a 24 hour period.

MiniMUF requires 16K. Upon loading the program comes up running with a prompt for viewing the menu or going right into the program. The menu explains the format for data entry: latitude, longitude, date, and sunspot number. Also the menu explains that by getting the solar flux number from WWV at 18 minutes past the hour, the sunspot number can be derived from the chart from the program. Some interpolation may be needed if the solar flux number is not a multiple of ten, but this is not a major concern.

After the solar flux chart, the program prompts for transmitter, receiver, date, and sunspot data. The screen goes blank for 1 to 3 minutes. Then program then displays the MUF for each hour in GMT (Greenwich Time).

This program is recommended for any ham trying to reach a specific area at a specific time. The only extra items needed for this program are maps with longitudes and latitudes, a radio for WWV listening and of course a ham station. Happy DX'ing.

HAWG WILD Software

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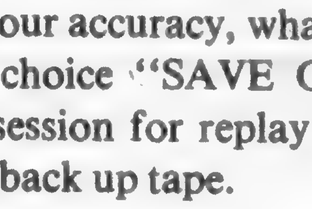

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CONTENTS

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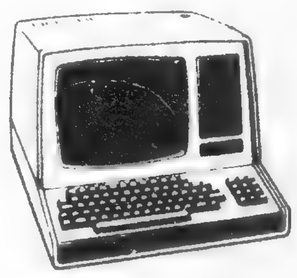

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Enclosed $12 check or m.o.

Name .....

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Brand of computer owned (If any) .....

Send order to **HOME BUSINESS NEWS**
12221 Beaver Pike
Jackson, Ohio 45640

DAN ROSS RESIGNS

When Clive Sinclair introduced the ZX81 to the British computer market, Timex, the watch company, handled the production. When Timex obtained the right to market the computer in North America (as the TS1000), they formed the Timex Computer Corporation. They also hired Dan Ross to head the division as vice-president of operations. Within five months, sales of the TS1000 accounted for 28 percent of all home computers sold in the U.S.

In a January 23 article, Info World reports that Ross has announced his resignation from Timex effective March 1984. His position will be taken by Mike Jacobi. The company's executive structure has been in a state of flux since last summer when the company began a major reorganization to speed introduction of the TS-1500, TS-2068, and related peripherals. Another goal of reorganization was the combination of Timex's three sales divisions - watches, clocks, and computers-into one.

Ross has not announced any plans for after his resignation. He has worked in the computer world for nearly twenty years. He began at IBM in data processing. Later he worked at Itel Corp., and Memorex. He came to Timex in March 1982.

Next to Clive Sinclair himself, in the minds of many Timex-Sinclair users, Ross has been the man most closely identified with the Timex-Sinclair line of computers. In the last two years, Ross has worked closely with user groups and promoted educational use of the TS-1000. He implemented the toll-free Timex hotline (1-800-24-TIMEX). He recently spoke at the Boston Timex-Sinclair Celebration, where he introduced the TS-2068 and declared Timex's desire to work with other vendors to develop software for the Timex line of computers.

DAN ROSS-Timex Computer Corp.
March 1982 to March 1984

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*ALLOWS UP TO 20 PROPERTIES
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12.95 (p&h included)

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BATTERY BACK-UP

- Uninterruptable power supply for ZX80, ZX81, and T/S1000.
- No memory loss when AC fails.
- Allows portable computing 7 hrs normal, 4½ hrs with 16K.
- Completely rechargeable with your computer power pack.
- No wiring, simple plug-ins.
- Safe, easy to use, economical.
- Ask for WITWATT 1000.

$36.50 plus $3.50 shipping/handling, CA residents add 6% sales tax. Send money order or check to: **WT ASSOCIATES, 3808 Rosecrans St., #262, San Diego, CA 92110.**

The Lamb's

Top Quality, 16K Games for TS 1000 or ZX 81 Owners

• BACTRAC	"PACMAN" STYLE
• EUREKA	HIDDEN MAZE & TREASURES
• ROADHOG	3-D NIGHT DRIVER
• STAR CITY	"DEFENDER" STYLE
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• BREAKOUT	BOUNCING BALLS & PADDLES

Cassettes $6 · Listings $2
(PER GAME, P/H INCLUDED)

THE LAMB'S SOFTWARE
1469 Aalborg Way
Solvang, CA 93463

ITEM: SYNCWARE. Several readers disagreed with our low assessment of Syncware News in the first issue of T-S Horizons. Well we were very impressed by issues 2 and 3, which contained a lot of good technical applications by knowledgeable writers. Consider this a retraction. If you are interested in the technical end of your TS1000, Syncware News is definitely worth checking out. $15 for 6 issues. P.O. Box 5177, El Monte, CA 91734.

ITEM: Wayne Green Books announces the publication of Converting To Timex/sinclair BASIC, by Stuart L. Bird. This book explains and demonstrates how to convert programs written for other computers to run on the Timex/Sinclair 1000. Over 200 replacement commands are provided, each with a complete description and an example of the command in use. The book is organized into 15 chapters by category, in a dictionary-like format. The author also discusses the differences among BASICs, as well as cartain problem situations and their solutions. $14.95 from Wayne Green Books, Peterborough, NH 03458.

TIP: When your cassette tapes are used over and over, harmful noises can accumulate which a portable tape recorder cannot completely erase. Erasing tapes for programming on a stereo cassette deck can cut down on cassette LOADing problems.

ITEM: Ace Software announces two new programs for home financial applications:
PAYOUT is designed to keep trak of your spending. Expenses are recorded by category and date, and spending trends are displayed on a monthly or quarterly basis. 16k.
PAYOFF helps you use credit cards and charge accounts wisely. Twelve accounts can be figured at once. The program tells you pay off periods and amounts, and considers various factors such as changing balances, accounts with varying interest rates, and adding new purchases. 16k.
Programs are $12.95 each from Ace Software, 2 East Oak Ave., Morrestown, N.J. 08057.

ITEM: Softmark Associates, 210 Fifth Avenue, New York, N.Y. 10010, has published a marketing guide specifically for Timex-Sinclair software. Subject matter runs from ideas for marketable programs to production and advertising. The book is called "How to Market Your Timex-Sinclair Software", and sells for $14.95 - money order, VISA, or Master Card (include card number and expiration date.)

ITEM: Biblical Software.
The following is a list of TS programs that have biblical themes offered by several companies.

"David and Goliath" and "The Ark." Biblical questions based on these two Old Testament stories. Flipcharts included. $12.95 each plus $1.50 postage and handling. Christian Software, Box 547, St. Rt. 590, Bettsville, OH 44815.

"Proverbs." Game format teaches 60 biblical Proverbs. Six difficulty levels. $7.50. DRRP Software, P.O.Box 3664, Peabody, MA 01980

"Bible Books." Drill Old and New Testament books, categorize by type (history, poetry, epistle, etc.), check spelling of books, arrange in proper order. $5. (2K version 3$.)
"Ten Commandments." Drill and practice adding key words to complete each commandment, arrange in proper order. $5.
"Prodigal Son." 2 programs. 1) Tells story of prodigal with user interaction. 2) Role-playing-type game based on the Prodigal Son parable. $10.
Marydel Frohme, St. Johns United Church of Christ, 601 N. Highway 83, Bensenville, IL 60106.

ITEM: 64K kit:
Gladstone Electronics is selling 64K RAMs for the TS 1000 as kits. Available in 3 forms. Complete kit with case $79.95. Bare bones kit: includes case, boards, 44 pin connector (you supply IC's, capacitors, and voltage regulator) $29.95. Fully assembled $99.95. Add $3 shipping. Gladstone Electronics, 1585 Kenmore Ave., Buffalo, NY 14217. In Canada, 1736 Avenue Rd., Toronto, Ontario, Canada, M5M 3Y7. (In Canada the prices are $99.95, $29.95, and $149.95, respectively, and $4.50 shipping.)

ITEM: Printer paper. Here are several sources for paper for the ZX and TS 2040 printers.

Timex TS 2040
-Suntronics Co., 12621 Crenshaw, Hawthorne, CA 90250. Blue print $9.15 for 4 rolls. Black print $7.80 for 4 rolls.
-E. Arthur Brown Co., 1702 Oak Knoll, Alexandria, MN 56308. Special paper. Similar to white stationery paper. Specify blue or black print. $5.95 per roll.

Sinclair ZX Printer
Integrated Data Systems, 11 Brighton Av., Dept. TS, Toronto, Ontario, Canada, M4M 1P3. Silver-colored paper for the original ZX printer. $11.00 for 3 rolls.

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Special discount sales ,available only to subscribers, on books, mailing lists, advertising and other items. Save %20 to %50.

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1/2 pg.....	$160	$150
2/3 pg.....	$210	$190
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City_____State____Zip_____

Do you already operate a business? What kind?

_____

What kind of articles would you like to see in HBN?

_____

ITEM: If you've written a good program for your TS 1000 and you think it could be marketed, here is an interesting book for you-"How to Market Your Timex-Sinclair Software." Some of the topics covered are: buyer profiles, purchasing trends, technical considerations, packaging, pricing strategies, publisher selection, royalties negotiation, mail order and effective advertising. $12.95. Available from Softmark Associates, 210 Fifth Ave., New York, NY 10010.

ITEM: FREE to Timex-Sinclair retailers and distributors! Computer-Wear Software is making available to qualifying dealers a FREE copy of their "DEMO" program, designed by a Madison Avenue advertising director specifically to help dealers sell more Timex hardware and software. "DEMO" is an automatic sales program that is "easily loaded by a sales clerk once in the morning, to provide 10 fast paced minutes of self-repeating, hard sell promotion; sure to draw a buying crowd." For more information contact Computer-Wear, P.O. Box 1059, Riverdale, NY 10471.

ITEM: Just in time for tax season!
Ksoft, 845 Wellner Rd., Naperville, IL 60540, has produced a set of five programs to help with filling out your Form 1040 and Schedules A, B, C, D, and E. Data is entered to the screen-display copy of the appropriate form. The program performs computations and also does some error detection - spreadsheet style! $14 for TS 1000 (16K) or $18 for the TS 2068, plus $1.50 shipping. (The cost is tax deductable.)

ITEM:
Gary Smith, of Hawg Wild Software, has created a special forum for XFORTH users, called the XFORTH XCHANGE. Gary seems to be an all out FORTH fan. He is a member of the well-known FORTH Interest Group (F.I.G.) and promotes national FORTH conventions. XFORTH XCHANGE is a newsletter published irregularly that prints comments and suggestions from XFORTH users and alerts users to new articles and books on FORTH-related topics. The price is right. (Free) Write to:
XFORTH XCHANGE, c/o HAWG WILD, P.O.Box 7688, Little Rock, AR 72217.

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DO YOU KNOW THE WAYS TO BUILD VAST WEALTH WITH A MINIMUM OF TIME AND EFFORT - AND OFTEN LITTLE CAPITAL?

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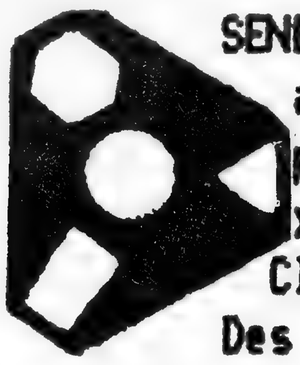
CASSETTE $8.95ppd

TS-1000;1500

*teletek
15 Central Way
Suite 169
Kirkland, WA 98033



SEND 9.95 FOR CASSETTE and manual. Gives pleasure and helps your thinking. 16K.
CIRCLE CHESS, Box 63
Des Plaines, IL 60017

USA

TAX EXEMPTION FOR TIMEX USER GROUPS

In a recent newsletter from the Triangle Sinclair Users Group of Carrbora, NC, Doug Dewey made the following announcement:

"We have been granted an initial ruling of tax exemption as an educational and scientific organization--and it is tax exemption of the most desirable type: qualified to receive public charity moneys and gifts for which the giver receives a tax deduction. We are proud to announce this special status and we will be happy to tell other groups who are contemplating an application for this special category of exemption just what we went through to justify ourselves as a valuable asset to the public. We did all the work ourselves and found the people at the IRS particularly helpful, though they were very specific in their need for exact details, wording, and information. If you are a member of a users' group and you would like to keep the "tax-exempt" option open for yourselves, then keep accurate records, newspaper articles, agendas, notices of meetings where you deal with and benefit the public, dates of adoption of constitutions and everybodies signatures on the things you adopt as governing instruments--date everything, sign everything--and all of your organizing documents--there is specific wording which must be included in the organizing document to meet rigorous IRS standards: write them first and ask for the wording so it can be included in your document. Work out a budget, project into the future with your budget--at least three years--detail all memberships and other contributions of money, goods and services. (Evaluate these last two in terms of dollars and cents-- and keep accurate monthly records). Most importantly, think through what you are doing and determine in your own mind if in fact you are working more in benefit of a small select group or more in benefit of the public at large--plan accordingly.

Of all the computer users' groups out there, Timex and Sinclair groups are going to be among the two or three possible groups that will be likely candidates for the very desirable tax exemption whereby donors may deduct contributions to the group as provided in section 170 of the Code: bequests, legacies, transfers, or gifts to a group or for the use of the group are deductible for Federal estate and gift tax purposes if they meet the applicable provisions of sections 2055, 2106, and 2522 of the Code. The advance period is over after a years' time (December 31, 1984), and the ruling itself is based on the evidence that our funds and program are dedicated to the purposes set forth in section 501(c)(3) of the Code. And to assure our continued exemption, we should maintain records to show that funds are expended only for those purposes.

I can tell you that all of us who are supporters of TSUG take this public trust seriously and pledge our work to the benefit of that public. I feel that we derive a substantial part of our strength from the best corporate ideals of the Timex and Sinclair companies. It has been in their nature to provide versatile utility, great economy of expense and design, and innovative technology in a small package. TSUG explores ways in which that technology can be put to work in the service of man and womankind."

If you would like more information, write to Triangle Sinclair U.G., 206 James St., Carrboro, NC 27510.

Below are the addresses of some newly formed user groups. For more information send a large self-addressed stamped envelope:

Southern Ohio and Northern Kentucky
Art Gindin
1823 Kinneys Lane
Portsmouth, Ohio 45662

Long Island Timex-Sinclair
Paul Donelly
10 Idle Day Drive
Centerport, New York 11721

Philadelphia
Mark Miller
9573 Walley Ave.
Philadelphia, Penn. 19115

Oklahoma TSUG
Billy Casebeer
P.O.Box 372
Oologah, OK 74053

For TS/ZX users who are interested in Archaeology:
Archaeological ZX User Group
c/o Robin Smith
30 Charles St. W#720
Toronto, Ontario, Canada M4Y-1R5

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FORMAT	SIZE*	1X	2X	4X
Full page	6-1/4 x 9	125.00	118.75	112.80
2/3 page	4-1/2 x 9	100.00	95.00	90.25
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1/3 page	4-1/2 x 4-1/2 2 x 9	65.00	61.75	58.65
1/4 page	3 x 4-1/2	35.00	33.25	31.60
1/6 page	2 x 4-1/2	28.50	27.10	25.75
1/9 page	2 x 3	17.10	16.25	15.50
2 inch	2 x 2	11.50	10.90	10.25
1 inch	2 x 1	6.00	5.75	5.50

* No charge for ad reductions.

INSTRUCTIONS: Print or type clearly. Multiple same-size ads to be run in the same or consecutive issues qualify for discount rates.

AD REDUCTION: Because of the reduced page size of T-S HORIZONS, there is no additional charge for reduction or enlargement of ads where necessary.

TERMS: All advertising is payable in advance until an account is established. Ad agencies write for discount information.

FORMAT: Black and white only at present time. Provided that sharp, clean copy is available, an ad may be reproduced from an ad in another publication.

CLOSING DATES: The deadline for all camera-ready advertising is the 15th of the month preceding issue date. Example: November 15th is the deadline for the December issue. The deadline for noncamera-ready advertising is the 10th.

PUBLISHING FREQUENCY: MONTHLY.

P. S.

From the mail we've received it is evident that many TS 1000 owners have bought the TS 2068, and they are eager for any information to help them to use it. Well, we are just as eager to provide it. Unfortunately there is a natural time lag after the introduction of a product before users become proficient enough to write about it. Also currently there are few products on the market associated with the 2068 for reviews to be written about.

So while we are committed to covering the TS 1000, of course (for most of us, our "first love"), we especially encourage our readers to share with us as they learn more about the new computer.

Well folks, that's all for issue #3. As always we have big plans for the future, and we hope you'll stick with us.

Sincerely,

Rick Duncan

Rick Duncan, publisher

BEYOND 64K...
Would you believe up to ONE MEGABYTE?

Memory expansion is only the BEGINNING of the possibilities available through **BASICare** ... the ONLY expandable-expansion system for Timex-Sinclair computers.

This is a unique flexible 'Building Block' expansion system that enables you to expand your system in any configuration you choose.

BASICare modules are what is required to turn any Timex Sinclair into a serious computer for business, education, industrial, and hobby applications. Your system can grow gradually as you can add new functions when and as required. In order to open the door to this exciting new world of expansions you require a Persona module. It simply (and firmly) plugs into your computer. No soldering. No modifications of any sort!

BASICare uses a unique 64 way Organic Bus. This bus is the pathway to all modules. You have INSTANT access to all modules simply and easily through the PEEK and POKE commands.

Memory can be added AS REQUIRED in blocks of 16K or 64K up to one MEGABYTE. This is memory that is INSTANTLY AVAILABLE. This is unlike any other system available for a home computer and compares in capability to multi-tasking systems costing thousands of dollars!

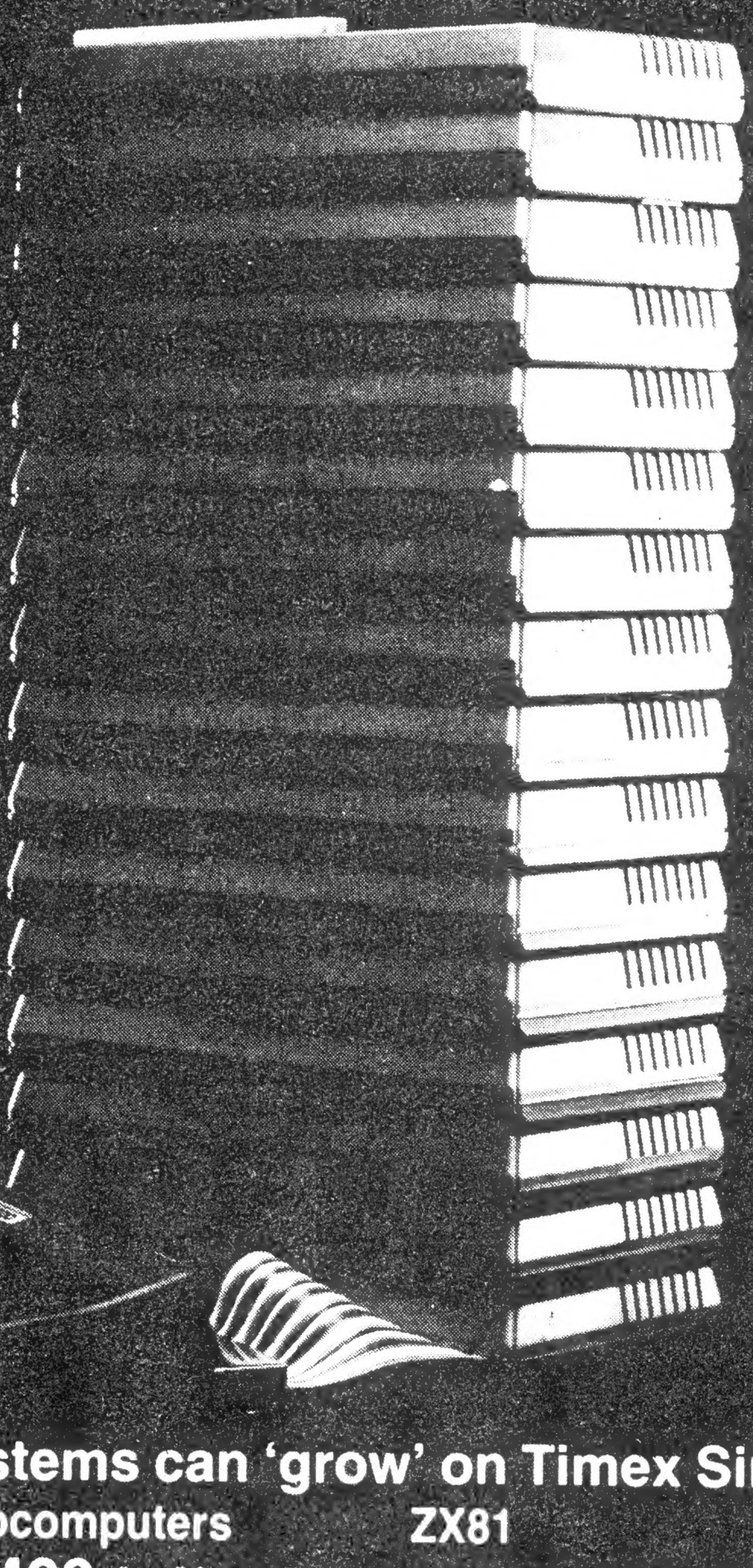
You can grow gradually, adding memory or other functions as you need them. Just think of the added power expandable memory will provide!

The PERICON modules add Input/Output functions like driving relays, LED's or a Centronics type printer.

The DROM offers a PERFECT alternative to tedious cassette saving and loading by holding your programs and data in non-volatile RAM.

These, combined with the other BASICare modules, put YOU in complete control.

GROW UP TO REAL COMPUTING. With BASICare's Modular Expansion System the modules will never become redundant. If you eventually change to a bigger, more powerful computer, the chances are that we will have a Persona interface to allow you to use your modules on the new equipment.



PERSONA: —Interface module to enable BASICare to grow on your computer **$ 59.95**

MINIMAP: —Memory mapping to extend the address space beyond 64K to 1 Megabyte. **$ 59.95**

RAM 16: —16K add-on memory. **$ 54.95**

RAM 64: —a TRUE 64K add-on memory. **$ 149.95**

DROM (2K): —Ultra low power memory backed by a rechargeable battery for non-volatile storage of programs and data. **$ 74.95**

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PERICON c: —To drive an 80 column printer with Centronics type parallel interface. **$ 74.95**

SONUS: —Three voice music sound synthesizer with independent envelope control under BASIC commands. **$ 59.95**

TOOLKIT: —An 8K module of utilities in EPROM ROM. **$ 44.95**

BASICare Modular Expansion Systems can 'grow' on Timex Sinclair;

TS1000 **microcomputers** **ZX81**

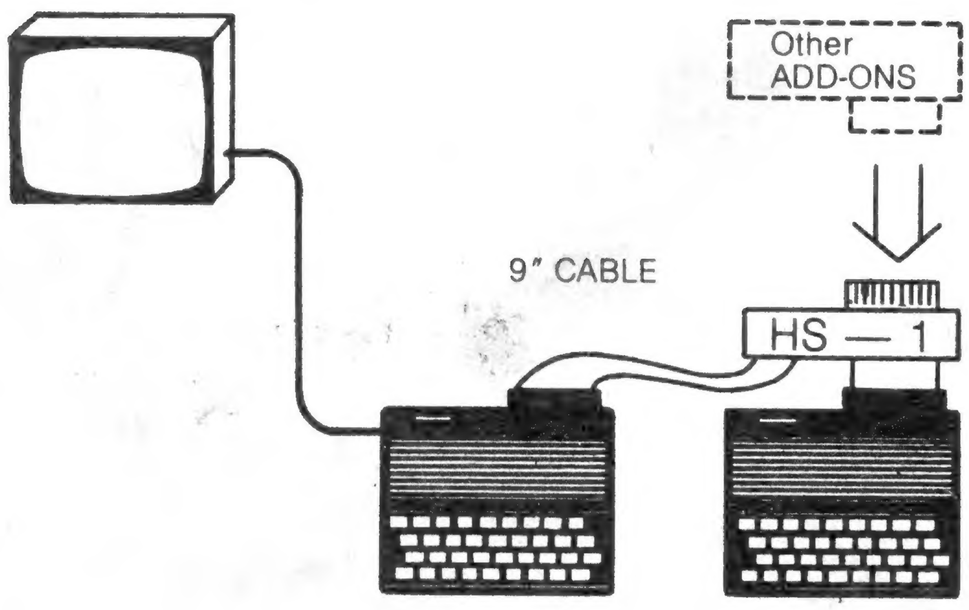
To order call toll-free 800-833-8400 In New York call (716) 874-5510.

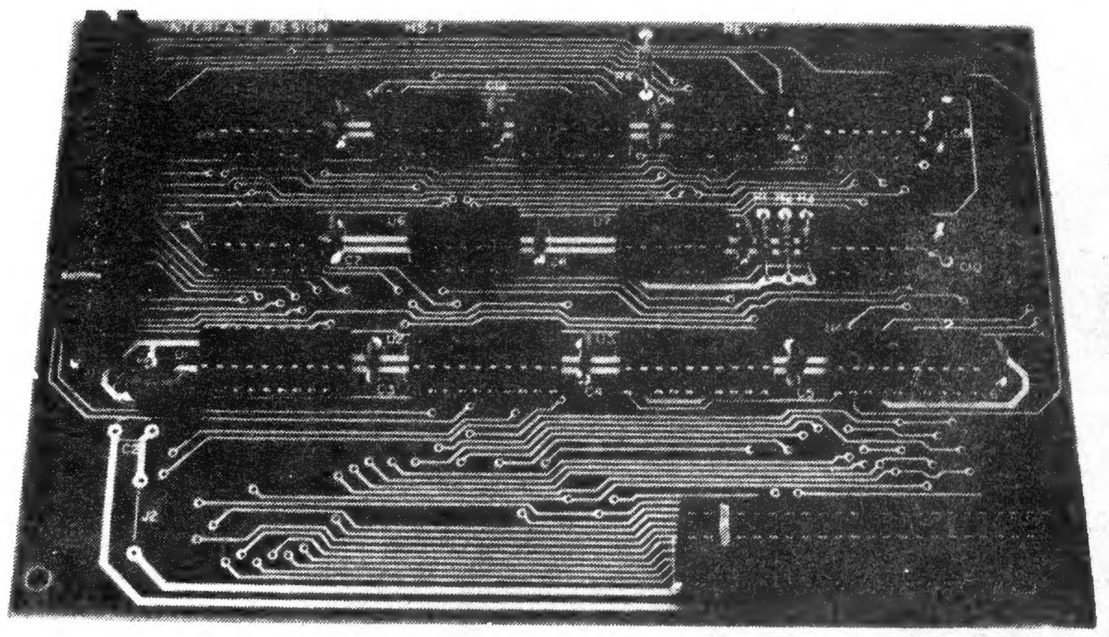
The phones are open 9AM - 10PM (E.S.T.) Monday to Friday. Call or write for further information.

BASICare is available direct from **1585 Kenmore Ave., Buffalo, NY 14217**

GLADSTONE ELECTRONICS and from selected dealers.
Dealer enquiries welcome.

HIGH SPEED
INTERFACE





FAST MODE / CONTINUOUS DISPLAY

PICTURE THIS —

- CONNECTING THE HS-1 INTERFACE TO A SPARE TS1000 CREATES A COMPUTING SYSTEM THAT IS QUICK AND RESPONSIVE LIKE MANY OF THE HIGHER PRICED PERSONAL COMPUTERS.

- FAST MODE FLICKER NO LONGER OCCURS WHEN ENTERING PROGRAM LINES AND DATA.

- SCREEN DISPLAYS OF PROGRAM LISTINGS AND OUTPUT APPEAR AT AMAZING SPEEDS.

- SOFTWARE LIKE FLIGHT SIMULATOR WILL HAVE RESPONSE TIMES LIKE A FIGHTER JET!

TECHNICAL SUMMARY:

THIS UNIQUE SYSTEM USES DIRECT MEMORY ACCESS TO COPY THE DISPLAY FILE FROM A FAST MODE COMPUTER TO A SLOW MODE TS1000 WHICH THEN PRODUCES THE DISPLAY. THE RESULTING SPEED GAIN IS AN IMPRESSIVE 5.5 TIMES FASTER THAN A SINGLE COMPUTER IN SLOW MODE.

KIT BUILDERS:

ASSEMBLY IS MADE EASY WITH A SOLDER-MASKED SILKSCREENED PC BOARD. HIGH QUALITY IC CHIPS (WITH SOCKETS) AND GOLD PLATED CONNECTORS PROVIDE RELIABILITY AND LONG LIFE. OTHER TIMEX/SINCLAIR PERIPHERALS MAY BE ATTACHED VIA A REAR CARD-EDGE CONNECTOR. INSTRUCTIONS AND SOFTWARE (<1K) ARE INCLUDED.

MAIL ORDERS TO:

INTERFACE DESIGN

P.O. BOX 151
REXFORD, NY 12148

HS-1 KIT	$78
HS-1 WIRED AND TESTED	$98
CABLE (9 INCH)	$19
SHIPPING	$ 4

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